

**A STATISTICAL STUDY ON NUTRITION OF SRI LANKAN  
CHILDREN UNDER 5 YEARS OF AGE**

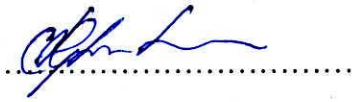
**by**

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**Thesis submitted to the University of Sri Jayawardenepura for  
the award of the Master of Science in Applied Statistics on 2006**

## Declaration

The work described in this thesis was carried out by me under the supervision of Mr. P. Dias, Senior Lecturer, University of Sri Jayewardenepura and a report on this has not been submitted in whole or in part to any University or any other institution for another Degree/Diploma.



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## Declaration

I certify that the above statement made by the candidate is true and that this thesis is suitable for submission to the University for the purpose of evaluation.

  
.....

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## **ABSTRACT**

In this study, nutritional status of children under five years of age have been investigated based on data collected by the Department of Census and Statistics. Study sample is comprised of 2576 children in the age group 3-59 months in the year 2000. An attempt is made to identify factors related to nutritional status of children. Growth parameters of Sri Lankan child population are compared with the international reference child population recommended by the WHO.

In addition the relationship between the weight of a child with his/her age is studied. This model is compared with that of the child health development record issued by Ministry of Health.

The study shows the factors such as age, birth weight, gender of the child, mother's educational level and number of children in the family have significant affect on nutritional status of the child. Weights and heights of Sri Lankan children are significantly lower than the weights and heights of international reference child population. However, the weights of Sri Lankan children lie in between lower and upper bound of growth chart of the child health development record issued by the Ministry of health.

It was found that issuing a common chart for both male and female children is not suitable since growth parameters are reasonably different for the two sexes.

# Chapter 1

## Introduction

### 1.1 Background of the study

Malnutrition has remained one of the leading global causes of loss of health and life of the children around the world. Malnutrition causes a great deal of human suffering. It is associated with more than half of all child deaths worldwide. (UNICEF, 2004)

Malnourished children have low resistance to infections; they are more likely to die from common childhood ailments like diarrhoeal diseases and respiratory infections. People who survive a malnourished childhood are less physically and intellectually productive and suffer from more chronic illness and disabilities.

Child malnutrition contributes to more deaths than any other health condition globally, accounting for about 6 million of these 10.9 million deaths. In South Asia, 47 per cent of the children under the age of five are underweight. (UN Secretary Generals Report on progress on Millennium Developments Goals, 7<sup>th</sup> September 2004.)

Malnutrition among children occurs almost entirely during first two years of life and is virtually irreversible after that, as more than 90 percent of the brain actually develops during the first two years (Gupta A., 1993). Child malnutrition impairs cognitive development, intelligence, strength, energy and productivity of nation.

Child malnutrition is associated with inappropriate feeding practices. Currently an estimated 63 per cent of children less than six months in the developing world are not adequately breastfed (UNICEF, 2005). Infants who are not adequately breastfed left with limited defenses against killer diseases like pneumonia and diarrhea and lack of essential nutrients to develop body and mind.

But UNICEF's state of the world's children 2005 shows that exclusive breastfeeding rates are still very low, just 37 per cent worldwide. In a developing country, a child that is not breastfed is about three times more likely to die in early infancy than a breastfed child.

Malnourished children usually come from poor physical and economic resources, such as overcrowded homes with poor sanitation and water supply, few household possessions and low income. They also tend to have unstable family units, with large numbers of closely spaced children.

Parental characteristics associated with infant malnutrition include poor health and nutritional status, poor obstetric history, extreme youth or age, low intelligence and educational levels, little media contact, few social contacts, traditional life styles, and low-skilled occupations. (Silly Craiytham, Mc Gregor, 1993)

## 1.2 Nutrition related indicators

Three standard indices are used to assess the nutritional status of a child.

- Height for age
- Weight for height
- Weight for age

$$\text{Height for age} = \frac{(M_o - M_e)}{SD_e}$$

Where  $M_o$  = Observed height of an individual in a given age

$M_e$  = Median height of the reference population in a given age

$SD_e$  = Standard deviation of the reference population in a given age

Formulas of other indices are similar to the above

A child whose height for age is below minus two is considered as stunted or chronically undernourished.

A child whose weight for height is below minus two is considered as wasted or acutely undernourished.

A child whose weight for age is below minus two is considered as underweight.

These are called anthropometric indices. International reference population was recognized by the WHO.

These conditions are considered as states of malnourishments. A child is considered malnourished, if he is stunted or wasted or underweight.

### **1.3 Nutritional status of children in Sri Lanka**

The most serious health problem in Sri Lanka is malnutrition; with over 29% of children who are between 3-59 months being underweight. Possible reasons for this problem could be that mothers do not necessarily have the adequate knowledge on the fundamental health and feeding practices. Even though they have basic education (with a female literacy rate of 90.6%) In addition, who are poor are unable to feed their children adequately.

Though the human development index of Sri Lanka is higher than similar developing countries, child malnutrition is still a serious problem. (Human development index of Sri Lanka, India, Bangladesh and Pakistan are 0.740, 0.595, 0.509, and 0.497 respectively. (UNDP, 2004))

Sri Lankan government has made a commitment to provide free basic health services which has led to exceptional levels of social indicators: literacy rate of 92.5%, population growth rate of 1.2%, and an infant mortality rate 11.1 per 1000 live births but poverty and under nutrition rates are still high.